REMARKS

The Examiner is thanked for the careful examination of the application.

However, in view of the foregoing amendments and the remarks that follow, the Examiner is respectfully urged to reconsider and withdraw the outstanding rejections.

By the foregoing amendments, the subject matter of claim 5 has been added to claim 1, the subject matter of claim 8 has been added to claim 6, the subject matter of claim 17 has been added to claim 13, and the subject matter of claim 19 has been added to claim 18. Claims 5, 8, 17, and 19 have been canceled to avoid duplication. Accordingly, independent claims 1, 6, 11, 12, 13, and 18 are pending in the application. Since the foregoing amendments merely move subject matter from dependent claims into independent claims, they do not raise any new issues and should be entered after final rejection.

Art Rejections:

Claims 1, 2, 6, 8, 11, 13, 14, 18, 19, and 22 have been rejected under 35 U.S.C. §102(b) as allegedly being anticipated by U.S. Patent No. 5,550,937, hereinafter *Bell*.

Claim 1 defines an apparatus for generating a three-dimensional data set, which includes, among other features, an extracting portion for extracting high precision areas from the first original data set and a three-dimensional generating portion for generating a three-dimensional data set of an object using a first original data set, a second original data set, a first low resolution data set (converted from the first original data set) and a second low resolution data set (converted from the second original data set). Because of the extracting portion, the generated three-dimensional data set includes a first part and a second part, wherein the first part is

generated using the first original data set and the second original data set, and the second part is generated using the first low resolution data set and the second low resolution data set, wherein the first part of the three-dimensional data set comprises the extracted high precision areas.

An advantage of the invention set forth in claim 1, is that important areas of the three-dimensional data set can be made with a high resolution, whereas remaining areas are generated with a low resolution, thus providing a good balance between image resolution and processing speed.

The Examiner alleges that *Bell* discloses a three-dimensional data set comprising a first part and a second part wherein the first part is generated using the first original data set and the second original data set, and the second part is generated using the first low resolution data set and the second low resolution data set. To support this position, the Examiner refers to Figure 9 and column 8, lines 6-61 and column 4, lines 1-9. However, Figure 9 does not represent a data set of an object. Instead, Figure 9 simply illustrates locations where there is a high degree of correlation between a neighborhood of pixel values 51T from one image sensor and a neighborhood of pixel values 52T from another image sensor. Thus, Figure 9 does not illustrate image data. It simply identifies locations where there are high degrees of correlation. See column 8, lines 56-61. In the "Response to Arguments", the Examiner alleges that "the data set of *Bell* is a cross-correlation surface of images of object, which meets the limitations of the claim". However, the claim states that the three-dimensional data set is a three-dimensional data set of the object. The map of correlation peaks 73 in Figure 9 does not in any way illustrate the object.

Furthermore, all of the data sets in *Bell* are created using data of the same resolution. Although *Bell* teaches creating several different data sets of varying resolutions (see Figure 2), *Bell* does not teach creating a three-dimensional data set using a portion of a data set of one resolution and a portion of a data set of another resolution.

With regard to claim 5, which has now been incorporated into claim 1, the Examiner further relies upon column 7, lines 36-49, and Figure 7 to allegedly teach an extracting portion for extracting high precision areas from a first original data set. However, this portion of *Bell* teaches superimposing one neighborhood of pixels from image 21B and another neighborhood of pixels from image 22B and superimposing one upon another in order to determine the extent of correlation. There is no extracting of a portion of one of the data sets. To the extent that the Examiner persists with the rejection of amended claim 1, the Examiner is respectfully requested to specifically point out where *Bell* teaches extracting a high precision area from the first original data set.

The Examiner further relies upon column 8, lines 46-61, to allegedly teach that the first part of a three-dimensional data set comprises the extracted high precision areas. However, as set forth above, this portion of *Bell* simply discloses a map showing where the two data sets in *Bell* have high area of correlation. In other words, the peaks 73 in Figure 9 simply represent the areas of correlation. They do not represent any image data.

Accordingly, amended claim 1 is clearly patentable over *Bell*.

Claim 2 depends from claim 1, and is thus also patentable *Bell* at least for reasons set forth above.

With regard claim 6, the Examiner's attention is directed to the fact that the subject matter of claim 8 has been incorporated into claim 6. Claim 6 discloses a three-dimensional data generating device that includes a converter for performing a resolution conversion of each of the input multiple images to generate converted images having a second resolution that is different than the first resolution. The generating device further includes a characteristic area extraction unit for detecting characteristic areas of the object from at least one of the input multiple images, and a three-dimensional construction unit for constructing three-dimensional data of the object by using data from the input images for the characteristic areas of the object and by using data from the converted images for remaining areas of the object, wherein the first resolution is higher than the second resolution. Thus, the three-dimensional data generated by the generating device of claim 6 uses high resolution data for "characteristic areas" of the object and uses lower resolution data for remaining areas of the object. Thus, a set forth above, a good balance of image resolution and processing speed can be achieved.

Bell does not teach or suggest a three-dimensional data set in which a part is extracted, selected, or detected by a higher resolution image, and a remaining part is represented by a lower resolution image. Although *Bell* teaches forming a series of images of different resolutions, *Bell* does not teach or suggest a three-dimensional data set constructed by using a portion of one of the resolution data sets and another portion of a different resolution data set.

Accordingly, amended claim 6 is patentable over *Bell*.

Claim 11 defines a three-dimensional data generating device that includes, among other elements, a three-dimensional construction unit for reconstructing

three-dimensional data of the object by using, from among said multiple images

having different resolutions, high resolution images for selected areas, and low

resolution images for non-selected areas. Again, the portions of *Bell* identified by the

Examiner is corresponding to claim 11 do not teach or suggest a three-dimensional

data set of an object that uses portions from high resolution data and other portions

for low resolution data. Each of the data sets discloses by *Bell* have the same

resolution.

Accordingly, claim 11 is also patentable over *Bell*.

Claim 13 has been amended to include the subject matter from claim 17.

Accordingly, claim 13 is patentable over *Bell* for the reasons set forth above in detail

with regard to claim 1.

Claim 14 depends from claim 13, and is thus patentable over *Bell* at least for

the reasons set forth above with respect to claims 1 and 13.

Claim 18 has been amended to include the subject matter of claim 19. Claim

18 is thus patentable over *Bell* at least for the reasons set forth above with respect to

claim 6.

Claim 19 has been canceled.

Claim 22 depends from claim 13, and is thus patentable over *Bell* at least for

the reasons set forth above with respect to claim 13.

Claims 3, 5, 15, and 17 have been rejected under 35 U.S.C. §103(a) as being

unpatentable over *Bell* as applied to claims 1 and 13 above, and further in view of

the *Akimoto* article. With regard to claim 3, the Examiner relies upon *Akimoto* only

for its alleged disclosure of a standard model fitting portion. However, Akimoto does

not overcome the deficiency of claim 1, from which claim 3 depends, with regard to

Bell. Accordingly, claim 3 is patentable over *Bell* and *Akimoto*.

Claim 15 depends from claim 13. Claim 15 is patentable at least for the

reasons set forth above with respect to claim 3.

Claims 5 and 17 have been canceled because of their incorporation into

independent claims.

Claims 4, 12, and 16 have been rejected under 35 U.S.C. §103(a) as being

unpatentable over *Bell* in view of *Akimoto* as applied to claims 3 and 15 above, and

further in view of U.S. Patent No. 6,532,011, hereinafter *Francini*.

Claim 4 depends from claim 3. The Examiner appears to rely upon *Francini*

for its alleged teaching of the claimed extracting portion. However, *Francini* does not

overcome the deficiency of the rejection of claims 1 and 3. Accordingly, claim 4,

which depends from claims 1 and 3, is also patentable over the applied prior art.

Claim 12 defines a three-dimensional data generating device that includes,

among other elements, a replacing device for replacing low resolution three-

dimensional data regarding specific areas with high resolution three-dimensional

data. For this portion, the Examiner refers to column 8, lines 22-34, and Figure 7 of

Bell. However, *Bell* does not teach or suggest replacing low resolution three-

dimensional data <u>regarding specific areas</u> with high resolution three-dimensional

data. As a result of the device of claim 12, the final three-dimensional data set

includes low resolution data and high resolution data to thus enable the above-

mentioned balance between processing speed and image resolution.

As mentioned above, each of the data sets in *Bell* is of a uniform resolution. Accordingly, *Bell* does not teach or suggest combining low resolution data with high resolution data to achieve a three-dimensional data set as described.

Accordingly, claim 12 is patentable over the applied prior art.

Claim 16 depends from claim 15, which depends from claim 13. With regard to claim 16, none of the prior art references relied upon by the Examiner teach or suggest the combination that includes the three-dimensional data set comprising a first part that is generated using a first original set and a second original data set and second part that is generated using a first low resolution data set and a second low resolution data set. Thus, a first part of three-dimensional data set of claim 16 is generated from a data set that has a higher resolution than the data set which comprises the second part. Accordingly, claim 16 is clearly patentable over *Bell*.

Claims 7, 9, 10, 20, and 21 have been rejected under 35 U.S.C. §103(a) as being unpatentable over *Bell* as applied to claims 6 and 18, and further in view of U.S. Patent No. 5,422,989, hereinafter *Bell '989*. The Examiner relies upon *Bell '989* for its alleged teaching of a first memory for storing converted images. However, claims 7, 9, 10, 20 and 21 depend from claims 6 or 18. And, *Bell '989* does not overcome the deficiency of the rejection of claims 6 and 18 that is set forth above.

Clearly, claims 7, 9, 10, 20, and 21 are also patentable over *Bell* and *Bell '989*.

In view of the foregoing amendments and remarks, the Examiner is respectfully requested to enter the foregoing amendments and to reconsider and withdraw the outstanding rejections.

Applicants reserve the right to further challenge the Examiner's analysis of the cited prior art references and/or the Examiner's alleged motivation for combining the prior art references at a later time, if necessary and appropriate.

In the event that there are any questions concerning this Amendment, or the application in general, the Examiner is respectfully urged to telephone the undersigned attorney so that prosecution of the application may be expedited.

Respectfully submitted,

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